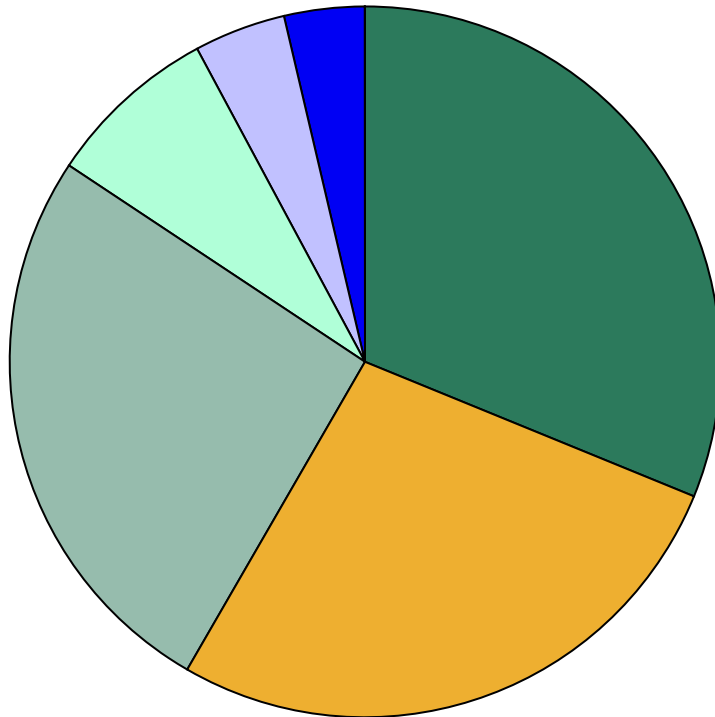


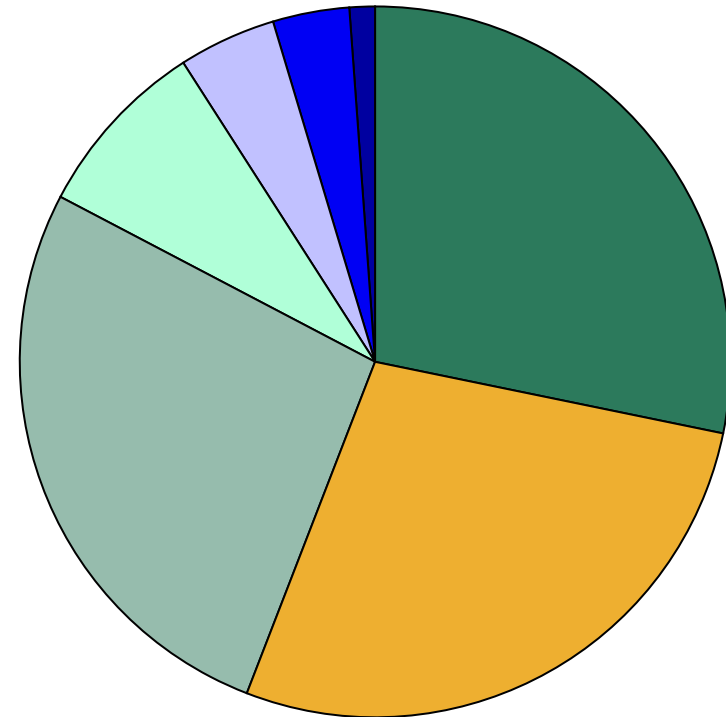
As of March 31, 2019

December 31, 2018 : \$2,133,639,922

March 31, 2019 : \$2,302,786,110



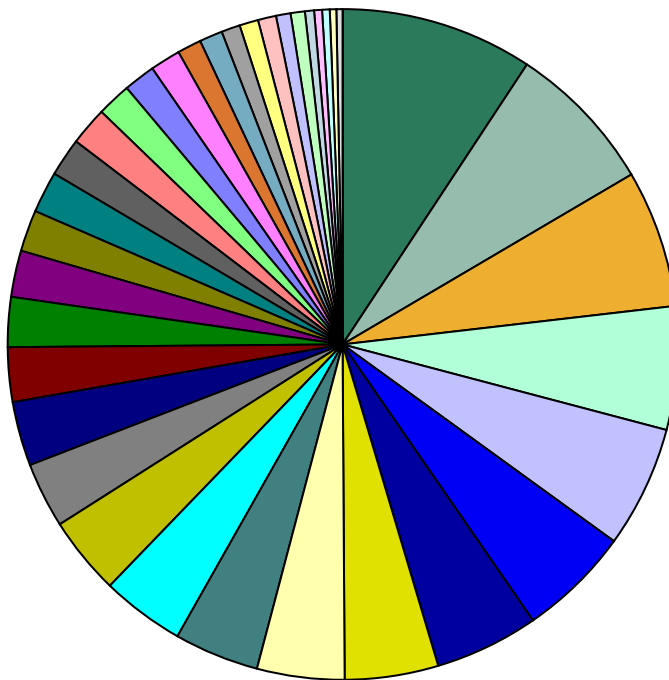
	Market Value (\$)	Allocation (%)
Fixed Income Composite	665,188,898	31.18
Domestic Equity Composite	579,569,067	27.16
International Equity Composite	554,382,899	25.98
Total Real Estate Composite	167,237,581	7.84
Hedge Fund Composite	89,032,862	4.17
Private Equity Composite	77,984,003	3.65
In House Cash	244,611	0.01



	Market Value (\$)	Allocation (%)
Fixed Income Composite	649,996,563	28.23
Domestic Equity Composite	636,859,890	27.66
International Equity Composite	617,165,744	26.80
Total Real Estate Composite	189,679,717	8.24
Hedge Fund Composite	102,195,927	4.44
Private Equity Composite	80,134,003	3.48
In House Cash	26,754,266	1.16

As of March 31, 2019

March 31, 2019 : \$2,302,786,110



	Market Value (\$)	Allocation (%)
Brandywine	213,563,630	9.27
Rhumblin S&P 500	167,306,181	7.27
Mackay Shields	152,592,572	6.63
Barrow, Hanley	136,724,385	5.94
1607 Capital Partners	135,229,237	5.87
Marathon Asset Mgmt	124,475,917	5.41
J.P. Morgan Global Emerging Markets Discovery Fund	115,306,682	5.01
Acadian EM Equity II	103,894,677	4.51
Prudential Core Conserv Bond	97,078,206	4.22
PIMCO	94,283,805	4.09
Smith Graham	92,478,351	4.02
Principal Global Investors	86,772,173	3.77
Winslow Capital Management	72,583,149	3.15
BlackRock US Core Property Fund	71,429,261	3.10
NTGI S&P 400	60,372,360	2.62
Rhumblin Russell 1000 Growth	55,296,453	2.40
Strategic Global Advisors	51,487,057	2.24
Aetos	46,085,586	2.00
Grosvenor Institutional Partners, L.P.	45,935,394	1.99
Conestoga Capital Advisors	42,603,739	1.85
Capital Prospects SMID	42,590,086	1.85
NB Crossroads Fund XXI	38,026,460	1.65
Pantheon Global Secondary Fund V	35,229,451	1.53
Nicholas Investment Partners	33,712,310	1.46
In House Cash	26,754,266	1.16
Capital Prospects Small Cap Value	25,630,951	1.11
Gerding Edlen Green Cities III, L.P.	20,839,020	0.90
TA Realty Fund XI	20,808,497	0.90
Long Wharf RE Partners V, L.P.	20,216,621	0.88
RREEF REIT II	16,229,314	0.70
Vanguard REIT Index Inv	15,767,456	0.68
Preserver, L.P.	10,174,947	0.44
Long Wharf Real Estate Partners IV, L.P.	8,696,595	0.38
Cornerstone (Barings) Real Estate Advisers Fund X	8,478,066	0.37
Mesirow Real Estate Value Fund III, L.P.	7,211,458	0.31
SSM Partners Growth Equity II L.P.	6,878,092	0.30
SouthernSun	40,275	0.00

# City of Memphis

## Asset Allocation Comparison

Portfolio Value 3/31/19

\$2,302,786,110

<u>Target Allocations</u>			<u>Current Managers &amp; Allocations</u>			<u>Difference</u>	<u>Range</u>
<u>Equity</u>		(000)			(000)		
Large Cap Equity	17.00%	\$391,474	Barrow, Hanley (large cap value)	5.94%	\$136,724	1.76%	13%-21%
			Rhumblin Russell 1000 Growth (large cap growth)	2.40%	\$55,296		
			Winslow (large cap growth)	3.15%	\$72,583		
			Rhumblin S&P 500 (large cap core)	7.27%	\$167,306		
Mid/SMID Cap Equity	5.00%	\$115,139	Northern Trust (mid cap core)	2.62%	\$60,372	-0.53%	0%-7%
			Capital Prospects SMID Cap*	1.85%	\$42,590		
Small Cap Equity	5.00%	\$115,139	Capital Prospects Small Cap Value*	1.11%	\$25,631	-0.57%	0%-7%
			SouthernSun (small cap value)	0.00%	\$40		
			Conestoga (small cap growth)	1.85%	\$42,604		
			Nicholas (small cap growth)	1.46%	\$33,712		
<b>Domestic Equity</b>	<b>27.00%</b>	<b>\$621,752</b>	<b>Domestic Equity</b>	<b>27.66%</b>	<b>\$636,860</b>	<b>0.66%</b>	<b>17%-37%</b>
Developed International	18.50%	\$426,015	1607 Capital Partners	5.87%	\$135,229	-1.22%	14%-23%
			Principal Global Investors	3.77%	\$86,772		
			Marathon Asset Mgmt	5.41%	\$124,476		
			Strategic Global Advisors	2.24%	\$51,487		
Emerging Markets	8.50%	\$195,737	Acadian	4.51%	\$103,895	1.02%	5%-12%
			JPMorgan	5.01%	\$115,307		
<b>International</b>	<b>27.00%</b>	<b>\$621,752</b>	<b>International</b>	<b>26.80%</b>	<b>\$617,166</b>	<b>-0.20%</b>	<b>17%-37%</b>
<b>Equity Total</b>	<b>54.00%</b>	<b>\$1,243,504</b>	<b>Equity Total</b>	<b>54.46%</b>	<b>\$1,254,026</b>	<b>0.46%</b>	
<u>Fixed Income</u>							
Core Fixed Income	12.00%	\$276,334	PIMCO	4.09%	\$94,284	0.33%	7%-17%
			Prudential Core Conserv Bond	4.22%	\$97,078		
			Smith Graham	4.02%	\$92,478		
Global Fixed Income	10.00%	\$230,279	Brandywine	9.27%	\$213,564	-0.73%	3%-13%
Global High Yield	6.00%	\$138,167	Mackay Shields	6.63%	\$152,593	0.63%	3%-13%
<b>Fixed Income Total</b>	<b>28.00%</b>	<b>\$644,780</b>	<b>Fixed Income Total</b>	<b>28.23%</b>	<b>\$649,997</b>	<b>0.23%</b>	<b>20%-36%</b>

\* Emerging Managers

**Real Estate**

Core/Value Add/REITs	10.00%	\$230,279	BlackRock US Core Property Fund	3.10%	\$71,429	
			RREEF REIT II	0.70%	\$16,229	
			Vanguard REIT Index	0.68%	\$15,767	
			Long Wharf Real Estate Partners IV	0.38%	\$8,697	(Total Commitment \$20M, Total Drawn \$21.5M, Total Distributed \$21.7M)
			Long Wharf Real Estate Partners Fund V	0.88%	\$20,217	(Total Commitment \$20M, Total Drawn \$20.0M, Total Distributed \$3.0M)
			Cornerstone (Barings) Real Estate Fund VIII <sup>1</sup>	0.00%	\$3	(Total Commitment \$10M, Total Drawn \$11.7M, Total Distributed \$15.6M)
			Cornerstone (Barings) Real Estate Fund X <sup>1</sup>	0.37%	\$8,478	(Total Commitment \$10M, Total Drawn \$7.8M, Total Distributed \$1.2M)
			Gerding Edlen Green Cities III	0.90%	\$20,839	(Total Commitment \$20M, Total Drawn \$21.7M, Total Distributed \$4.9M)
			TA Realty Fund XI	0.90%	\$20,808	(Total Commitment \$20M, Total Drawn \$20.0M, Total Distributed \$1.7M)
			Mesirow Financial Real Estate Value Fund III	0.31%	\$7,211	(Total Commitment \$20M, Total Drawn \$8.2M, Total Distributed \$1.1M)
			<i>Gerding Edlen Green Cities IV (\$20M Commitment)</i>			
			<i>Long Wharf Real Estate Partners Fund VI (\$20M Commitment)</i>			
			<i>Dune Real Estate Partners Fund III (\$30M Commitment)</i>			
			<i>TA Realty Core Property Fund (\$20M Commitment)</i>			

<b>Real Estate Total</b>	<b>10.00%</b>	<b>\$230,279</b>	<b>Real Estate Total</b>	<b>8.24%</b>	<b>\$189,680</b>	<b>-1.76%</b>	<b>5%-10%</b>
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**Private Equity**

Secondary	2.00%		Pantheon Global Secondary Fund V	1.53%	\$35,229	(Total Commitment \$50M, Total Drawn \$33.7M, Total Distributed \$9.9M)
Direct Private Equity			SSM Partners V*	0.30%	\$6,878	(Total Commitment \$10M, Total Drawn \$5.6, Total Distributed \$0.0M)
Diversified FoF	2.00%		Neuberger Berman Crossroads XXI	1.65%	\$38,026	(Total Commitment \$50M, Total Drawn \$32.0M, Total Distributed \$0.0M)

<b>Private Equity Total</b>	<b>4.00%</b>	<b>\$92,111</b>	<b>Private Equity Total</b>	<b>3.48%</b>	<b>\$80,134</b>	<b>-0.52%</b>	<b>2%-6%</b>
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**Hedge Fund of Funds**

	4.00%		Actos	2.00%	\$46,086	
			Grosvenor	1.99%	\$45,935	
			Preserver, LP*	0.44%	\$10,175	
<b>Hedge Fund of Funds Total</b>	<b>4.00%</b>	<b>\$92,111</b>		<b>4.44%</b>	<b>\$102,196</b>	<b>0.44%</b>
						<b>2%-6%</b>

Internal Account	0.00%	\$0	Internal Account	1.16%	\$26,754	
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<b>Cash</b>	<b>0.00%</b>	<b>\$0</b>	<b>Cash</b>	<b>1.16%</b>	<b>\$26,754</b>	<b>1.16%</b>	<b>0%-5%</b>
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<b>Total</b>	<b>100%</b>	<b>\$2,302,786</b>	<b>Total</b>	<b>100%</b>	<b>\$2,302,786</b>		
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<sup>1</sup> Cornerstone Real Estate Advisers now operates under the investment adviser name "Barings Real Estate Advisers," however; all predecessor funds retain the name Cornerstone. All new products open to new investors will operate under the name "Barings Real Estate Advisers" moving forward.

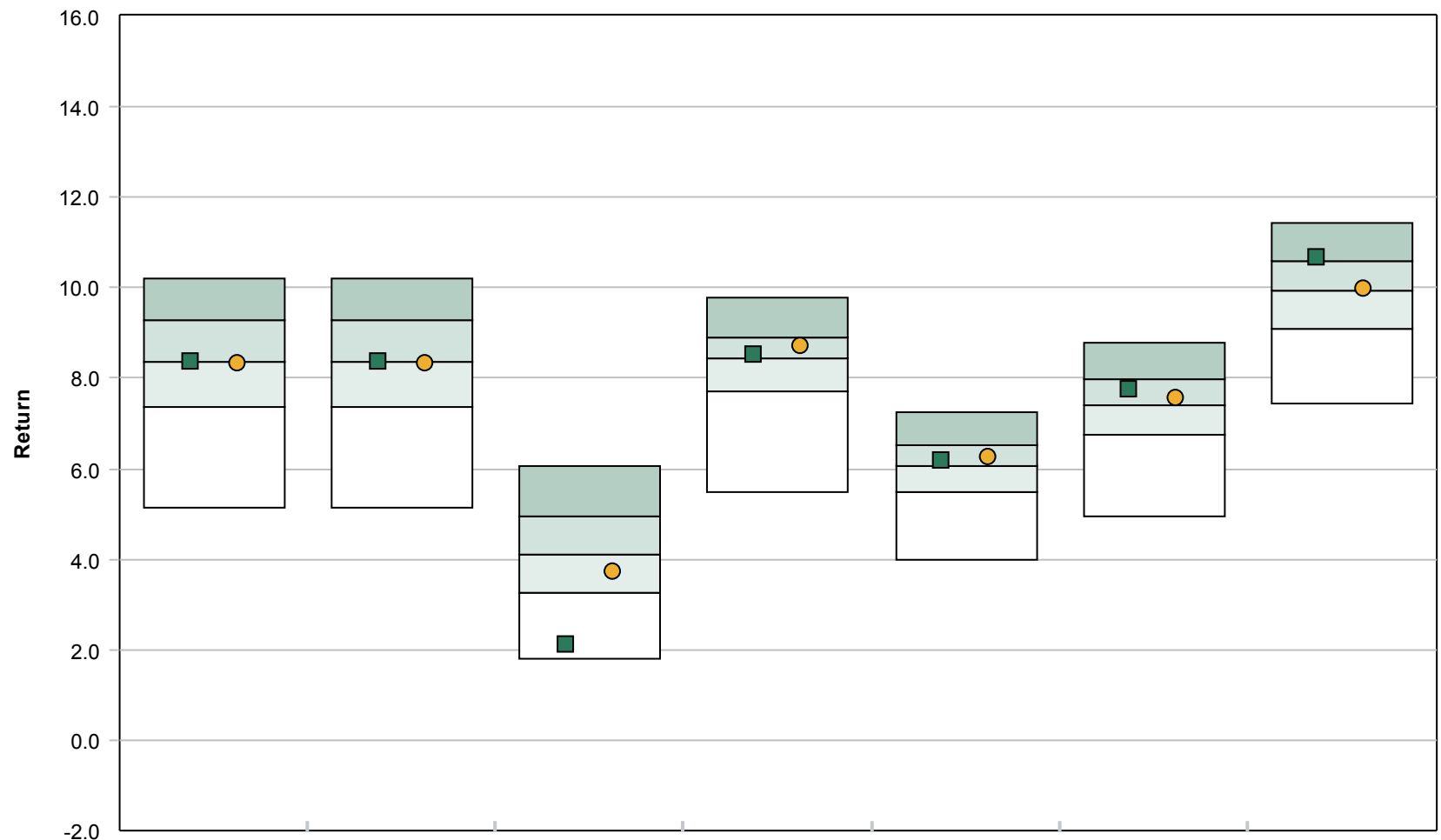
As of March 31, 2019

	Performance (%)								
	1 Quarter	Year To Date	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
<b>Total Fund Composite</b>	<b>8.36</b>	<b>8.36</b>	<b>2.12</b>	<b>8.51</b>	<b>6.16</b>	<b>7.76</b>	<b>10.67</b>	<b>9.45</b>	<b>10/01/1982</b>
Policy Index	8.32	8.32	3.70	8.71	6.26	7.56	9.96	9.90	
In House Cash	0.61	0.61	2.23	1.15	0.76	0.58	0.53	4.16	10/01/1982
90 Day U.S. Treasury Bill	0.60	0.60	2.12	1.17	0.73	0.54	0.41	3.89	
<b>Domestic Equity Composite</b>	<b>14.39</b>	<b>14.39</b>	<b>7.72</b>	<b>13.65</b>	<b>8.97</b>	<b>11.65</b>	<b>15.62</b>	<b>11.84</b>	<b>10/01/1982</b>
Russell 3000 Index	14.04	14.04	8.77	13.49	10.36	12.63	16.00	11.64	
<b>Fixed Income Composite</b>	<b>3.71</b>	<b>3.71</b>	<b>1.85</b>	<b>3.56</b>	<b>3.42</b>	<b>3.57</b>	<b>6.06</b>	<b>7.47</b>	<b>10/01/1982</b>
Fixed Income Index	3.57	3.57	2.97	3.32	2.96	3.23	4.28	7.39	
<b>International Equity Composite</b>	<b>11.36</b>	<b>11.36</b>	<b>-5.92</b>	<b>9.34</b>	<b>4.75</b>	<b>7.29</b>	<b>10.88</b>	<b>5.20</b>	<b>01/01/1990</b>
International Equity Index	9.97	9.97	-4.82	8.28	2.85	5.14	9.35	5.05	
<b>Hedge Fund Composite</b>	<b>3.50</b>	<b>3.50</b>	<b>1.09</b>	<b>5.01</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>5.01</b>	<b>04/01/2016</b>
90-Day T-Bill+ 5%	1.83	1.83	7.23	6.23	5.76	5.56	5.43	6.23	
HFN FoF Multi Strategy Index	3.62	3.62	-0.35	3.50	1.62	2.78	3.07	3.50	
<b>Core Private Real Estate Composite</b>	<b>4.27</b>	<b>4.27</b>	<b>9.37</b>	<b>7.39</b>	<b>10.24</b>	<b>10.26</b>	<b>9.85</b>	<b>8.41</b>	<b>09/01/1999</b>
NCREIF Property Index	1.80	1.80	6.83	7.07	9.13	9.62	8.51	8.91	

As of March 31, 2019

	Performance (%)									
	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
<b>Total Fund Composite</b>	<b>-5.39</b>	<b>18.36</b>	<b>6.77</b>	<b>0.24</b>	<b>5.49</b>	<b>17.71</b>	<b>13.75</b>	<b>0.72</b>	<b>14.05</b>	<b>22.23</b>
Policy Index	-4.45	16.72	8.00	-0.19	5.86	15.19	12.79	0.77	12.11	19.76
In House Cash	1.93	0.67	0.35	0.18	0.11	0.11	0.20	0.54	0.36	0.34
90 Day U.S. Treasury Bill	1.87	0.86	0.25	0.03	0.04	0.05	0.08	0.08	0.13	0.17
<b>Domestic Equity Composite</b>	<b>-5.88</b>	<b>22.62</b>	<b>10.04</b>	<b>-1.26</b>	<b>8.80</b>	<b>35.55</b>	<b>16.30</b>	<b>0.65</b>	<b>18.23</b>	<b>28.67</b>
Russell 3000 Index	-5.24	21.13	12.74	0.48	12.56	33.55	16.42	1.03	16.93	28.34
<b>Fixed Income Composite</b>	<b>-0.98</b>	<b>6.94</b>	<b>5.14</b>	<b>-0.23</b>	<b>4.70</b>	<b>0.13</b>	<b>8.15</b>	<b>6.69</b>	<b>8.81</b>	<b>18.96</b>
Fixed Income Index	-0.89	5.65	4.83	-0.86	4.89	0.39	6.87	6.39	6.54	5.93
<b>International Equity Composite</b>	<b>-15.52</b>	<b>33.29</b>	<b>3.30</b>	<b>-0.50</b>	<b>-1.08</b>	<b>20.79</b>	<b>20.28</b>	<b>-12.77</b>	<b>13.91</b>	<b>36.19</b>
International Equity Index	-13.99	28.77	3.16	-4.06	-4.13	16.58	17.70	-13.18	11.60	42.14
<b>Hedge Fund Composite</b>	<b>-1.47</b>	<b>6.79</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
90-Day T-Bill+ 5%	6.97	5.90	5.27	5.03	5.04	5.05	5.08	5.09	5.14	5.17
HFN FoF Multi Strategy Index	-3.58	7.26	0.16	-1.26	3.02	9.09	4.80	-5.56	4.78	9.73
<b>Core Private Real Estate Composite</b>	<b>4.91</b>	<b>7.75</b>	<b>8.50</b>	<b>11.92</b>	<b>20.06</b>	<b>7.12</b>	<b>14.60</b>	<b>13.01</b>	<b>22.87</b>	<b>-27.15</b>
NCREIF Property Index	6.72	6.96	7.97	13.33	11.82	10.98	10.54	14.26	13.11	-16.85

As of March 31, 2019



■ Total Fund Composite  
● Policy Index

	1 Qtr	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Total Fund Composite	8.36 (51)	8.36 (51)	2.12 (92)	8.51 (48)	6.16 (45)	7.76 (38)	10.67 (23)
Policy Index	8.32 (52)	8.32 (52)	3.70 (65)	8.71 (35)	6.26 (41)	7.56 (45)	9.96 (48)

5th Percentile	10.22	10.22	6.04	9.77	7.26	8.80	11.44
1st Quartile	9.27	9.27	4.96	8.89	6.53	7.98	10.57
Median	8.38	8.38	4.11	8.43	6.04	7.42	9.92
3rd Quartile	7.36	7.36	3.27	7.69	5.48	6.77	9.08
95th Percentile	5.16	5.16	1.81	5.47	3.99	4.94	7.44

Parentheses contain percentile rankings.  
Calculation based on quarterly periodicity.